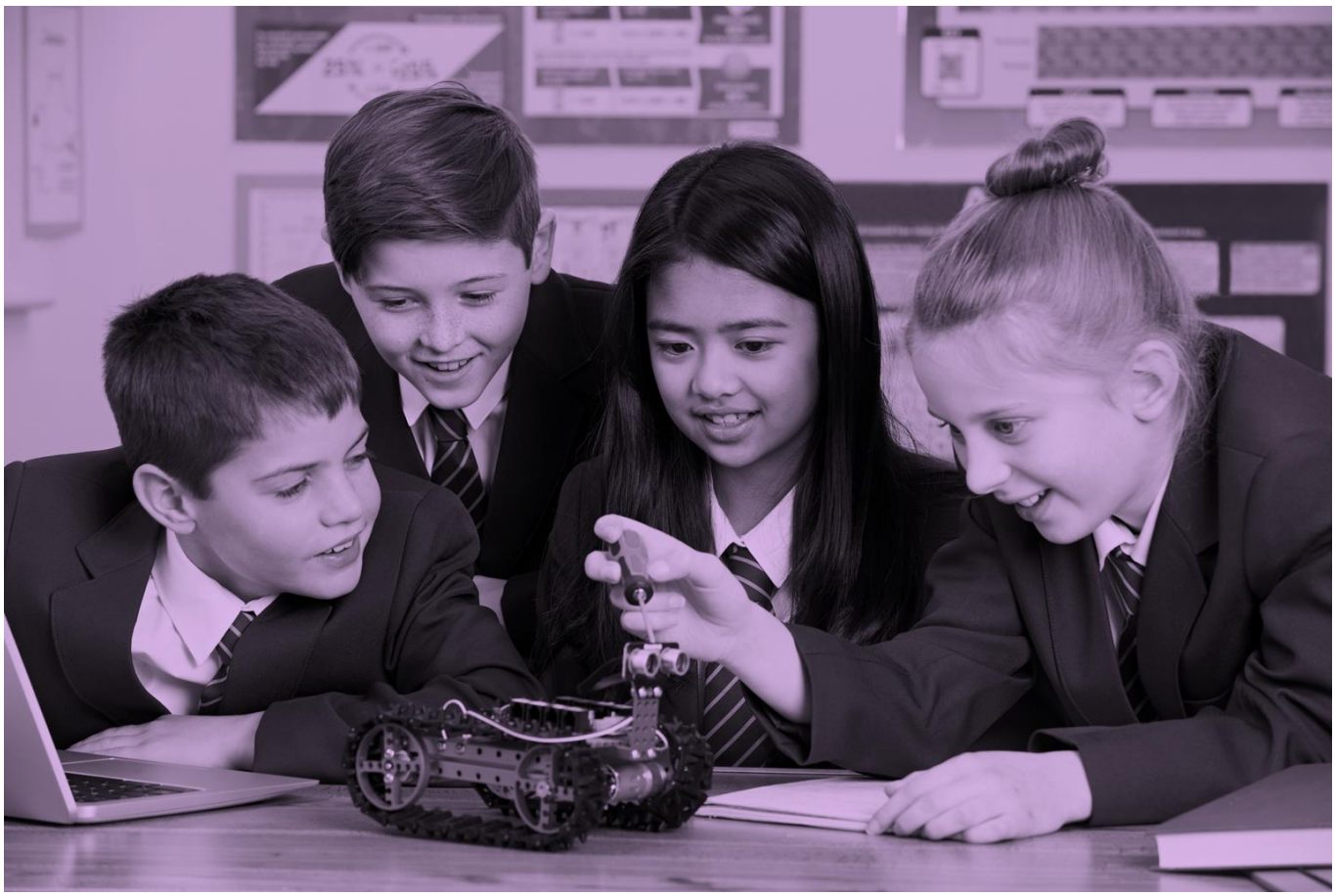

Free For All?

Analysing free schools in England, 2018

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About this research

Free schools are all-ability schools, funded by the government, and can be set up by groups such as charities, universities, teachers or parents. Free schools came into being as part of the Academies Act 2010 and the Education Act 2011 and have the same legal status as academies. The first free schools opened in September 2011 and by the end of September 2017, 311 had been established, of which 156 were primary free schools, 118 secondary free schools and 37 all-through free schools. Nine have closed since being established (four primary, five secondary).

This report takes a snapshot of the free school programme in England, seven years after its establishment, looking at the types of school set up, the characteristics of their pupils, and their academic outcomes.

Little is known about the types of schools which have been set up by the free school programme. In this research, we examine the various categories of free school, looking at the balance of faith schools, former independents, schools showing a real innovative ethos, schools established by parents, and schools opened by existing multi academy trusts. We also examine how the proportions of schools in each of these categories have altered over time.

As well as types of free school, comparatively little research into the characteristics, progress and attainment of pupils attending these schools has emerged to date (EPI, 2017). Evidence is limited, and where it exists, findings suggest mixed outcomes (Sumner, 2017). Free schools are a small, diverse group, with certain schools behaving very differently with respect to performance (Nye and Thomson, 2017).

We therefore build on the research base by comparing pupil intake characteristics of free schools to their catchment areas using the three most recent cohorts of available pupil data: 2014/15, 2015/16 and 2016/17. Through this, we aim to provide local context to the national-level free school statistics which currently exist and provide further evidence on the question of social selection to free schools (Bolton, 2016). We explore the question of where free schools are established, and how characteristics of these areas might have an impact on the schools themselves. Furthermore, we gain some insight into whether certain free schools have been more successful at achieving policy aims of alleviating basic need for school places, generating school diversity, and raising standards.

We aim to respond to the following research questions:

- What are the types of free schools that have been set up under the programme?
- Are free schools being set up in areas where they are needed?
- What are the characteristics of pupils who attend free schools and how do they compare to their catchment areas?
- Are free schools proving to be a popular choice with parents?
- How does Key Stage 4 attainment of pupils who attend free schools compare to pupils in other schools with similar characteristics?

In order to address these questions, a three-stage process was implemented. Firstly, to provide a more nuanced picture of the types of free schools, information was sourced from publicly available sources, including school websites and prospectuses, and coded into categories. Secondly, a series of illustrative case studies were selected to provide further insight into the types of schools identified. Publicly available sources were combined with interviews with staff where possible. Finally, administrative data on schools, pupils and their characteristics was obtained through the 'Get Information about Schools' website, the National Pupil Database, and other official statistics published by the Department for Education, and analysed quantitatively.

As the free school policy is still in its relatively early stages, it is likely that the free schools picture is changing year-by-year. As more free school data becomes available, it is possible to derive more nuanced insights into how free schools are functioning in practice. Research presented in this report, and subsequent research updates, will be useful for enabling a better understanding of the types of pupils who are attending free schools, and the impact these schools are having on their progress.

Executive summary

- Free schools were the flagship education policy of the coalition government when they were first introduced in 2010. They were intended to bring new and innovative providers – including parents and teachers – into a more autonomous and self-improving school system, driving up standards through greater school choice and increased competition. Today, as the preferred model of new schools, they remain a key part of government education policy and are likely to continue to play an important role in future years. The free school policy is in many ways a continuation of a larger drive towards school autonomy pursued by various governments over the last 20 years, starting with the Labour government's original academy policy in the early 2000s.
- Free schools are all-ability schools, funded by the government. They are not run by local authorities and have the same status as academies. Free schools have flexibility over decisions such as the length of the school day, and they are not required to follow the national curriculum. However, unlike most academies, free schools are unique in having freedom to shape the approach and ethos of a school from the very beginning of a school project. The free school programme aimed to improve school standards by increasing the autonomy of schools, in the hope that this would subsequently boost choice and competition between them.
- One of the original intentions of the free school programme was to encourage groups of parents to set up schools in their communities. However, only one in five free schools has had parents involved in their inception, and the proportion of parent led schools has decreased over time. The number of schools with parental involvement was at its height in the early years of the programme, with parents involved in the set-up of over 40 per cent of the 25 secondary free schools opened between 2011 and 2013. Of the 37 secondaries established since 2015, this has dropped to less than 20 per cent. For primary and all-through free schools, the proportion has dropped from 32 per cent to just four per cent (30 schools in total).
- Another aim of the free school programme was to increase the number of schools with innovative approaches to their curriculum or ethos. However, only one third of the free schools which have been set up were found to have demonstrated such a novel approach. Innovators have been more common in the primary sector, with 35 per cent of 152 primary free schools which are still open found to be innovative, compared to 29 per cent of 113 open secondary free schools.
- A further outcome of the free school programme was a substantial increase in non-Christian faith schools, particularly Muslim, Jewish and Sikh schools.
- In reality, the free school programme has been a vehicle by which new schools are opened by academy chains, a trend which has increased in recent years. From 2011 to 2013, about half of secondary free schools and just over a quarter of primary and all-through schools were set up by academies. This has increased to almost four in five of the new free schools opened since 2015 (78 per cent of the 37 secondaries and 84 per cent of the 73 primary and all-through schools). Overall, 178 free schools have been set up by academy trusts, over half (59 per cent) of all free schools.
- Free schools have largely been set up in areas with a need for more school places, but some areas have ended up with either more, or less capacity than needed. In earlier years of the free school programme, most primary free schools were opened in areas which had enough school places. However, over time this has shifted, and in later years most new primary free schools have been opened in areas with at least some need. A few primary school planning areas which have opened a new free school now have excess places, which may lead to schools in those areas having to face budget cuts in future. Conversely, almost all the secondary planning areas which had a free school opened in the years examined here did not have enough places, with half of those having a severe need. Further extra places are still needed in most secondary planning areas.
- Free schools are often located in areas of disadvantage. However, both primary and secondary free schools have lower proportions of disadvantaged pupils than their catchment areas. At primary level, 16 per cent of the pupils in the catchment areas of free schools are eligible for free school meals (FSM), but only 13 per cent of pupils attending those schools are eligible. Similarly, 17 per cent of secondary free school pupils are FSM eligible, compared to 19 per cent of pupils in secondary free schools catchment areas. These figures suggest that free schools are slightly less representative in terms of disadvantaged pupils compared to the communities that they serve.

- Ethnic minority pupils make up a larger proportion of intake pupils in free schools compared to other school types and to their catchment areas. For primary free schools, 51 per cent of intake pupils in their catchment areas are from an ethnic minority, compared to 61 per cent of intake pupils in those schools. Similarly, in secondary free schools, 47 per cent of intake pupils are from ethnic minorities, compared to 45 per cent in their catchment areas. At secondary level, the over-representation of ethnic minority pupils in free schools is limited to free schools with a faith ethos, although this is not true of primary free schools.
- Free schools are generally popular with parents and are not any less popular than other types of school. Primary free schools receive more first and total preferences from parents applying to schools and receive more first preferences as a proportion of places available than other school types. Secondary free schools receive the lowest number of first preferences from parents but have one of the highest proportions of first preferences compared to spaces available of any school type.
- It is currently too early to evaluate the Key Stage 2 results of primary free schools, as schools have not been open for long enough to have pupils who have been educated solely by their free school. At Key Stage 4, pupils at free schools perform slightly better than pupils at other types of school, and disadvantaged pupils in free schools perform the equivalent of a quarter of a grade higher in each subject compared to their peers in other school types. However, while initial GCSE results at Key Stage 4 are promising, they are still currently based on a relatively small number of pupils.

Recommendations

1. The government should review and clarify the mission of free schools. The original intention of the free school programme was to encourage parents and teachers to help set up new schools, and to encourage innovation. But the programme has increasingly become the only vehicle for new schools at a time of rising rolls. New free schools should have a clear and distinctive mission.

2. The government should review the relationship between the New Schools Network, regional schools commissioners and multi academy trusts (MATs). Given that free schools are increasingly set up and led by MATs rather than parents and that regional schools commissioners (RSCs) are playing a larger role in advising whether a new free school application should be approved, the government should review the respective roles of the different players in the commissioning process to avoid needless duplication of effort and improve value for public money.

3. There should be better co-ordination and clearer lines of responsibility for local school planning. At present, legal responsibilities rest between local authorities, RSCs and the Department for Education, which approves new free schools. The system needs greater clarity and coordination, and better independent arbitration where disputes arise, including over the impact of new free schools on existing successful schools. The Office of the Schools Adjudicator has this role in school admissions. It could be extended to disputes related to the establishment of new free schools.

4. Surplus primary capacity should be converted to secondary capacity. Planning assumptions in the past have led to a surfeit of capacity at primary level, but we are soon to face shortages in secondary places as a result of earlier demographic shifts. RSCs should review provision in their regions and where appropriate use some planned sites for primary schools for secondary school facilities.

5. Free schools should recruit more disadvantaged pupils. While free schools are frequently located in areas of disadvantage, the evidence is that many do not reflect the communities they serve. As part of the funding agreements for new free schools there should be an expectation that they actively recruit disadvantaged and other underrepresented groups of pupils so that free schools reflect the diversity of their local communities.

1 Policy context

School autonomy has been a signature reform for governments of all political hues over the past 20 years, including cabinets comprising the three main parties in British politics. Tony Blair's Labour government initiated the 'City Academy' programme in 2000, which allowed philanthropic sponsors to take over struggling state schools and implement reforms outside the ambit of local authorities. That programme expanded throughout the 2000s, and with it the growth of academies run by sponsors as part of a chain, or MAT. In 2006, the Education and Inspections Act also gave parents the right to demand the setting up of a school (House of Lords Library, 2006) but local authority opposition meant few such parent-led schools were actually established (Ryan, 2010a). However, when the Conservative-Liberal Democrat coalition came to power in 2010, they would combine these two reforms into a new type of school: the free school.

Free schools are all-ability schools, funded by the government, and can be set up by groups such as charities, universities, teachers or parents. They are not run by local councils and have the same legal status as academies (GOV.UK, 2018). Accordingly, they have more flexibility than traditional schools in terms of school day length, staff pay, and are not required to follow the national curriculum. Free schools came into being as part of the Academies Act 2010 and the Education Act 2011 (Great Britain. Statues 2010). In Autumn 2010, the development of the first 16 free schools was announced, a number which grew to 24 by the time the first wave of schools opened in September 2011. By the end of September 2017, 156 primary and 118 secondary free schools had opened, nine of which subsequently closed (four primary, five secondary). There are also 37 all-through free schools. This compares to 1,700 'sponsored academies', struggling schools which had been taken over by sponsors as part of the original academies programme, 4,000 schools which had voluntarily 'converted' to academies, and around 14,500 local authority maintained schools (DfE, 2017a). While all new academy schools are now categorised as free schools, the extent of the programme remains modest, particularly in comparison with the reach of the academy conversion programme instigated by the coalition government from 2010. Between September 2011 and September 2017, 146 schools have also been set up according to the traditional local authority model.

In order to further expand the programme, the 2015 Conservative government promised 500 new free schools in the five years of the parliament (Coughlan, 2015). In July 2017, then Secretary of State Justine Greening reiterated the government's commitment to the free schools programme, promising choice,

Swedish Free Schools

Swedish friskolor (free schools) were first introduced in the 1990s. All schools in Sweden operate under a voucher system in which they receive public funding for each of their pupils. This system results in schools competing with one another for pupils, and therefore for funding. Swedish schools are run either by municipalities (local government) or as free schools run by profit or non-profit making organisations. State funded schools in Sweden - including profit making free schools - cannot charge fees. Free schools in Sweden must also be approved by the schools inspectorate and follow the national curriculum, as is the case for municipal run schools (Swedish Institute, 2018).

Around 14 per cent of pupils in compulsory schools (up to the age of 13) and 26 per cent of pupils in upper secondary school (between the ages of 14 and 18) in Sweden attend free schools (Swedish Institute, 2018). The schools are more common in cities, and their pupils are more likely than average to have well educated parents, or to have parents from second-generation immigrant families. The largest group of Swedish free schools are for-profit private schools, which provide a general education. However, free schools which follow specific teaching practises, or are religious, are also common (Allen, 2010).

In the time since free schools were first introduced, overall educational outcomes in Sweden have gone down, but it is difficult to know how much this decline can be attributed to the free school programme. Free schools were introduced at the same time as many other education reforms took place in Sweden, including moving the responsibility for schools from the central government to local municipalities; a large increase over the control all schools had over their own curriculum and changes to pupil demographics including an increase in immigration. However, in recent years, there is some evidence to support free schools improving educational outcomes. For example, research in 2015 found that an increase in free schools in a municipality is accompanied by an increase in educational performance in the area - including when factors such as the social economic background of students' parents are controlled for (Böhlmark and Lindahl, 2012).

United States Charter Schools

Charter schools in the United States are publicly funded schools, open to all pupils and operated independently from the traditional school district, offering substantial operational, curriculum and financial autonomy. There are almost 7,000 charter schools in the US, making up around 8 per cent of all public schools (Reuters, 2017). They are mostly independently run, but many are operated by non-profit or for-profit management organisations that run networks of schools. The majority (59 per cent) of charter schools though are independently managed on a single site, rather than part of a network (NAPCS, 2016).

While the charter school concept was developed in the 1970s and 80s, the first charter laws were passed by states starting in 1991. Since the turn of the millennium, their number has been growing strongly, with enrolment increasing six-fold between 2000 and 2015 (NAPCS, 2016). Research on their effectiveness is mixed, with substantial variation amongst schools. Some research has shown that, overall, charter schools have a weak or negative effect on student outcomes (CREO, 2015). However other research has demonstrated substantial differences between urban and non-urban charters, with growing evidence that charters located in areas with high levels of poverty and minority populations are particularly effective (Angrist, *et. al.* 2013).

innovation and higher school standards for parents (DfE and Greening, 2017). The 2017 Conservative manifesto also made commitments to build at least a hundred new free schools a year (The Conservative and Unionist Party Manifesto, 2017). As the preferred model for new schools, free schools will continue to play a strong role in the development of the school system in future years. However, substantial questions about their nature and effectiveness remain. As noted by then Secretary of State for Education, Michael Gove, who introduced the policy, the English free school programme was initially modelled on the free school movement in Sweden (Gove, 2012), along with the charter school movement in the United States, which had also inspired academies. In both cases, groups of teachers, parents or other organisations could apply for state funding to set up a new school, and would have extensive freedom over curriculum, hiring, ethos and admissions policies (though Swedish free schools were required to follow the national curriculum, albeit a reformed and slimmed down version) (Holmlund and McNally, 2010). However, in both the US and Sweden, for profit organisations were permitted to establish such schools. Such 'privatisation' of the state school system in England would likely have proved highly politically controversial, and thus free school sponsors were required to be non-profit making.

The basic intention behind these schools in all three countries was to create a more autonomous and self-improving school system by driving up standards through greater school choice and increased competition, which has been reiterated several times in England by ministers (Gibb, 2015). Encouraging 'innovation' by schools is thus a key element of the policy of all three countries. In the case of the US charter school and Swedish free school movements, both public school systems faced a lack of educational diversity, with schools operating according to relatively rigid procedures. While pre-reform Sweden had many Montessori and Steiner schools, most were run privately (Degerman, 2012). However, free schools in England arrived in an environment where diversity and school autonomy had already strongly taken hold in the decade since the establishment of the academy programme, along with local management of schools by headteachers and governors since the early 1990s. Furthermore, a readymade set of free school management organisations already existed in the form of academy sponsors, many of which were operating multiple schools as part of emerging MATs. While these factors arguably meant free schools arrived into a more facilitative environment, the converse was that this potentially mitigated their distinctiveness.

Nonetheless, giving groups of parents and teachers the power to apply for new schools independent of traditional school planning processes was a novel, and often controversial measure. In 2013, the National Audit Office (NAO) reported that free schools were not always being set up in areas of greatest need for pupil places (NAO, 2013). As a consequence, this was putting a financial strain on local authorities where surplus capacity had been created. Following this, there has been an increasing shift in focus towards establishing free schools in areas with need for pupil places, which is explored in Section 3. However, as well as the additional cost this created for the Department for Education due to time-lagged funding arrangements, the NAO report also highlighted extremely high capital spending on free schools, with the average cost of premises more than double initial assumptions. The high cost of the free school programme has been a source of controversy at both national and local levels.

In order to address questions over cost and geographic targeting, the programme has evolved over time. When setting up a free school, proposers are advised to consult their local authority along with the RSCs regarding existing provision and local

need, plus the New Schools Network for general guidance, before submitting a proposal to the Department for Education themselves (DfE, 2018a). This process, involving four separate bodies with overlapping agendas and responsibilities, has not necessarily resulted in coherent planning outcomes, and leaves substantial room for streamlining in order to reduce the burden on free school proposers.

In the next section, we move on to considering how the types of free school that have been created have matched the original intentions of the policy.

2 What types of free school have been set up?

Given their status as effectively academy schools, the distinctiveness of the free school project was in the nature of their application and establishment process. Having freedom from the very beginning of a school project to shape its approach and ethos promised the scope for innovation in the sector. But with free schools having existed for seven years now, what has this meant in practice? We examine this theme by looking at a typology of free schools.

One of the major early outcomes of the free school policy was an increase in the number of faith schools, in particular a substantial increase among non-Christian faith schools. Labour Secretary of State David Blunkett had approved the establishment of the first Muslim school in 1998, followed by the establishment of several others by Labour governments, and since 2011 another 21 have been set up, many of them by the Tauheedul Education Trust. Faith schools, including Muslim, Jewish and Sikh schools, have been strong drivers of the free school programme.

Another existing trend fostered by the free school programme was the conversion of former independent schools, several of which had already returned to the state sector as academies under the Labour government, including the Belvedere School in Liverpool and Colston Girls School in Bristol (Ryan, 2011a). Since 2011, another dozen or more independent schools joined them, attracted by the level of autonomy now available within the state-funded sector.

However, many schools were indeed set up by groups of local parents and teachers. And several of the early free schools offered innovative new approaches to schooling, from STEM-focused schools, to oracy-based schools, to bilingual schools and schools following alternative curricula.

Defining and assessing the free school programme is a challenge, because of the inherent diversity of the concept, but also because of the evolution of the programme. It is impossible to understand the success or otherwise of the free school policy without looking at the types of schools that have resulted.

Case Study 1: Innovative free school, Judith Kerr Primary

Judith Kerr Primary is one of the first bilingual primary schools in England, with pupils at the school taught in both English and German. Opened in 2013 in Herne Hill, South London - the school is named after their patron, Judith Kerr, OBE. Ms Kerr is the author of the famous children's book, *The Tiger Who Came to Tea*. Born in Berlin, she left Germany as a child to escape from the Nazis, travelling through Switzerland and France before her family settled in the UK.

Roughly 40 per cent of pupils at the primary school have at least one parent who is a German speaker, but pupils can also start at the school with no previous knowledge of the language - with additional support in place for such pupils, including parent language classes to help non-German speaking parents to help their children at home. All staff at the school can speak both languages, and pupils are also supported by a regular team of trainee teachers from Germany.

Pupils follow language programmes from the Goethe Institute - Germany's cultural institution. Language teaching at the school is adapted to the level of each student, and at the end of their time at the school, pupils are entered into language exams under the Common European Framework assessments - corresponding to their level of fluency.

Pupils at the school are also taught about various aspects of German culture. In their first inspection of the school in 2015, Ofsted reported that "The opportunity to learn in depth about German culture provides pupils with an international perspective, which further enriches their spiritual, moral, social and cultural education." The school's fluent German speakers also follow aspects of the curriculum of Baden-Württemberg, one of the 16 states which make up Germany.

Judith Kerr Primary was rated as 'good' in the school's first Ofsted inspection, but data is not yet available on how the school's pupils have performed in Key Stage 2 examinations. In the last academic year, 12.5 per cent of the school's current pupils were eligible for FSM at some time in the last six years, and 20.4 per cent of the pupils had English as an additional language.

Innovation and inception by local community groups were at the centre of the free schools concept, and while many such schools have been built, it is less clear that this concept has underpinned the programme as a whole. In particular, as free schools have now become the default model for new schools, with all new academies characterised as such, it has become a vehicle for the expansion of MATs.

Types of free schools

While the free school model was originally based around innovation and parental involvement, it has certainly not been the case that all free schools set up since 2011 have followed this model. As free schools have increasingly become the 'default' new school type, their nature has changed further. In order to describe the nature and evolution of this provision, we created a typology, looking at the originating purpose of schools and how they were set up. We examined the various categories of free school by examining source materials including school websites, prospectuses and local media.

A more detailed methodological note for this classification process can be found in Appendix A, but briefly, the major types identified were: former independent schools, faith schools, 'innovators' demonstrating genuine novelty in their curriculum or ethos (for examples, see case studies 1 and 2), those which had been parent-led in their set up (case study 3), and those set up by a MAT (case study 4).

The typology was necessarily overlapping, as many schools fitted into more than one category, and forcing each school into one category would have been an oversimplification. Around 93 per cent of schools fitted into at least one of these categories.

Table 2.1 Free school types, by phase of education

	Primary		All-through		Secondary	
Innovator	53	35%	17	46%	33	29%
Parent led	23	15%	7	19%	32	28%
MAT led	98	64%	13	35%	67	59%
Faith	44	29%	6	16%	21	19%
Former independent	5	3%	9	24%	3	3%
Uncategorised	11	7%	3	8%	7	6%
Total	152		37		113	

Table 2.1 shows the overall picture of free school types, looking at secondaries, primaries and all-through schools separately. As there was some overlap between categories (for example, about one in three primaries set up by MATs were also designated as innovative), schools were allowed to fall into multiple categories. Hence percentages will not add up to 100.

Case Study 2: Innovative free school, Rural Enterprise Academy

The Rural Enterprise Academy is the first land-based free school in England, opened in 2012 in Staffordshire, an area with a large local farming community. The school is sponsored by South Staffordshire College, the water and waste management company Veolia, and the National Farmers Union.

From the 180-hectare site in rural Staffordshire, pupils have access to a variety of facilities including a working farm, a fish hatchery, an equine centre, science laboratories, horticulture facilities and an international school of floristry. Through the school's partnership with South Staffordshire College, pupils have access to facilities the college provides, including a shared transport service and careers advice.

The school teaches pupils from year 9 to sixth form. At GCSE level, pupils study for a mix of academic and non-academic qualifications. Traditional academic subjects taught at GCSE include English (language and literature), maths, science, business, geography, French and IT. These subjects are taught alongside vocational courses in subjects including agriculture and equine studies. Sixth form options at the school include A-levels in English literature, maths, biology, chemistry, physics, psychology, and business studies, which are taught alongside level 3 BTECs in animal management, agriculture and horse management. Several land-based extra-curricular options are available to pupils within the school estate, including horse riding lessons, horse care, game bird management, zoo training and animal care.

Ofsted rated the school as 'good' in the school's first inspection in 2014, reporting that "the curriculum matches the aspirations of pupils well and reflects the large farming community in the area. It has good balance of academic and land-based vocational routes. There is a wide range of rural-based extra-curricular activities involving working with animals and enrichment activities, such as the Duke of Edinburgh Award scheme". In the last academic year, 26 per cent of the school's pupils were eligible for FSM at some point in the last six years, and none of the school's pupils had English as an additional language. The school's latest Progress 8 score of +0.23 was well above the national average.

As Table 2.1 shows, free schools with a faith ethos account for 23 per cent of the total number established since 2011. This is much lower than the 34 per cent of faith-based schools in the schools sector nationally. This difference is largely due to there being no Roman Catholic free schools, whereas nearly 10 per cent of schools nationally are Roman Catholic. Of the new free schools with a faith ethos, around half were of non-Christian faiths. The role of faith schools and students from BAME backgrounds is explored in more detail in Section 4.

There is a lower, but still notable, number of converting former independent schools among the established free schools. In total, 17 are now state-funded free schools, about half of which are all-through schools.

In the remainder of this section, we will focus on the three most common types of free school we identified – innovator, parent led, and new academy schools – and look at how these categories have evolved since 2011. To do this, we analyse trends in free schools across three periods of time – 2011/12 to 2012/13; 2013/14 to 2014/15 and 2015/16 to 2017/18. The number of free schools opened in these three periods are reported in Table 2.2.

Table 2.2 Free school numbers opened by time bands

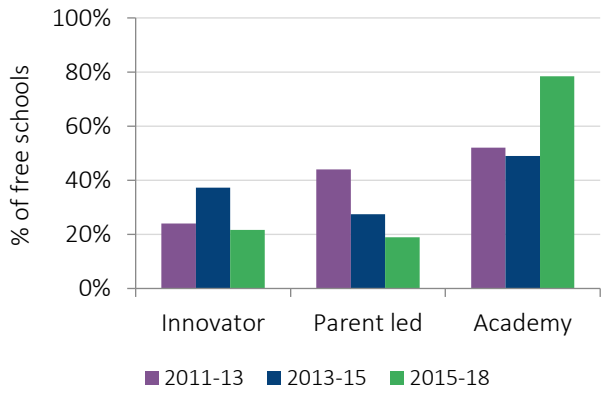
	Primary & All-through	Secondary
2011/12 to 2012/13	41	25
2013/14 to 2014/15	75	51
2015/16 to 2017/18	73	37
Total	189	113

Secondary free schools

As shown in Table 2.1, we find that less than one in three secondary free schools are 'innovator' schools, demonstrating a genuinely novel approach to the curriculum or to their ethos. Such innovations included schools focusing on enterprise and entrepreneurship, schools integrating music teaching across the curriculum, schools focused on farming and rural issues, and schools concentrating on developing 'global citizenship' and leadership. However, of the secondary free schools set up by MATs, we find that just 18 per cent are innovator schools compared with 46 per cent of the non-trust led schools. This is indicative of the motivations for the establishment of such schools, with academy trusts often setting up such schools to increase capacity, rather than concentrating on developing innovative practices.

Figure 2.1 shows levels of innovation peaked during the big expansion of free schools in 2013/14 and 2014/15, when 37 per cent of the new secondary free schools that opened during that period were innovators, compared to 22 per cent of those opened since 2015/16. FSM eligibility rates were slightly higher in these innovator schools than non-innovators (an average of 18 per cent compared to 16 per cent), but the average proportion of English as an additional language pupils was substantially lower (20 per cent compared to 30 per cent). This perhaps reflects the very low number of faith schools in this category, which may have larger English as an additional language populations.

Figure 2.1 The proportion of innovator schools has decreased since 2015



We find that 28 per cent of secondary free schools have had significant parent or community participation in their establishment. Parent led schools are no more or less likely to feature innovation than other types of schools. There is also no discernible difference in average FSM rates, but again, English as an additional language rates in parent set-up schools are about half of those without parent involvement (averaging 16 per cent compared to 32 per cent). Notably, we find that while parental involvement is much less likely in MAT led new free schools, 13 schools had substantial parental involvement despite being part of a MAT, indicating cooperation between the two groups, often facilitated by the New Schools Network.

Since the establishment of the free schools programme, a majority of secondary schools (and indeed free schools overall) have involved a MAT in their establishment. As reported in Table 2.1, just under three in five secondary free schools registered with a MAT when they were set up. Such schools are less likely to have parent involvement, less likely to demonstrate innovation and are more likely to have a faith designation (22 per cent of secondary free schools in a MAT compared to 11 per cent of those not in a MAT). FSM rates showed no difference, but English as an additional language rates are higher

than for secondary free schools not established in a MAT (31 per cent compared to 22 per cent), reflecting the prevalence of faith schools run by MATs, in particular Muslim and Sikh schools.

The pattern of these categories has shifted substantially over time. While innovation peaked during the middle period of the free school programme, parental involvement has dropped off consistently during the seven years, falling from 44 per cent of secondary free schools established in the first two years, to 19 per cent for schools opened during the last three. Critics at the time warned that the government may have overestimated levels of parent demand for such schools, and this data indicates that any initial enthusiasm from that group has substantially declined in recent years. Conversely, the level of MAT involvement has jumped from around half of secondary free schools between 2011 and 2015, to over three quarters of those set up since 2015.

Case Study 3: Parent-led free school, The Archer Academy

The Archer Academy was set up by a group of local parents in East Finchley, London. The parents first started a "local schools for local children" group in 2011, to campaign for a mixed-sex, non-denominational, non-selective secondary school in their area. The group had not originally intended to set up a free school but had approached the local authority to request that a new school was opened to make up for the lack in current provision. Toby Blume, one of the school's parent founders, recounted that in response the local authority "told us they did not have the money nor were they able to do so. They directed us to the free school route. But, it is my view that the council and the Department for Education wanted parent proposers to come forward, to support the new free schools policy."

The group have also since helped and offered advice to other groups of parents hoping to set up free schools. Toby said that "the amount of work involved for parents setting up a school is now much clearer than it was when Archer was set up. I'm not sure that if we'd have known how much work was involved then, that we would have taken it on."

The school was graded as 'good' in their first Ofsted inspection in 2015, but data on Key Stage 4 exam results is not yet available for the school. In the last academic year, 28 per cent of the school's pupils had been eligible for FSM in the last six years, and 32 per cent had English as an additional language.

When Toby was asked if he thought other groups of parents would be able to set up a free school now, based on his experience in setting up Archer Academy and in helping with other applications since, Toby commented that "I think when we applied there was a genuine interest and desire, at least in the rhetoric of politicians, to have parent led academies. Now the emphasis is very much on larger MATs and chains - and I think that a single trust governance model is now considered undesirable."

As volunteers, the group of East Finchley parents found the process of putting together a free school application time consuming and complex. They estimated that, as volunteers, each founder put in about 30 hours on average a week to the project – though some worked considerably more - a workload which they reported to continue for years after the school had been approved and set up. The application and set up process required a wide range of skills and expertise and the parents drew on their professional experience in communications, community engagement, IT, project management and governance. They also made extensive use of knowledge and expertise, drawing on contacts from the local area and professional networks, to ensure they had the skills required to set up the school, including an educational specialist who joined the proposer group.Archer Academy opened in September 2013. Looking back at the experience now, parent founder Toby said that "I am extremely proud of what we achieved. The school is great. It is serving the community and has added much needed provision to the area. Our aspirations and practice have, I think, encouraged other local schools to 'up their game' too, and I think it is causing some re-appraisal locally of what might be possible."

The majority of the school's 12 founders now have children attending Archer Academy -Toby's daughter is currently in year 9 there, and he has two younger children who he plans to send to the school when they are old enough to attend - "My daughter is very happy - as much as a 14-year-old is ever 'happy' with school" Toby said, "she's doing well and we are delighted with her experience. And I think that the vast majority of parents with children at the school are very happy as well. Does that mean everything is perfect? No, of course not - there are things we can, and will, improve - but overall I think, as a parent, it is a fantastic school and my daughter and her peers are thriving."

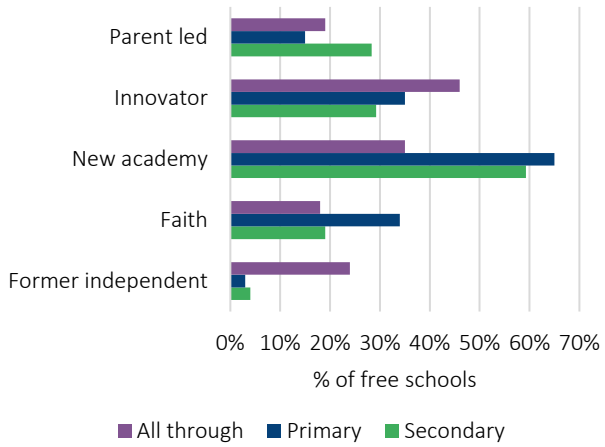
Most of the original founders are still involved with the school, either as governors or Trust members.

Primary and all-through free schools

As shown in Figure 2.2, the levels of new free schools established by MATs in the primary and secondary sectors was similar - 65 per cent compared to 59 per cent respectively. The level of innovator free schools were also fairly similar with 35 per cent in the primary sector compared to 29 per cent in the secondary sector. Many primary schools were found to have implemented various non-standard curricula, including the International Primary Curriculum and the Cornerstones Curriculum. Parental involvement however was substantially lower in primary and all-through free schools at just over half of the rate in secondary schools (16 per cent compared to 28 per cent). There were also more primary and all-through free schools with a faith ethos, 26 per cent compared to 19 per cent among open secondary free schools.

As shown in figure 2.2, all-through schools were somewhat different to primary and secondary free schools. This is characterised by the level of MAT involvement in all-through free schools (35 per cent) being substantially lower than for primary and secondary free schools and by a high number of former independent schools. In fact, there were almost as many former independents in this category (nine schools) as free schools established in a MAT (13 schools). The levels of innovation among of all-through schools were also higher than primary and secondary free schools at 46 per cent.

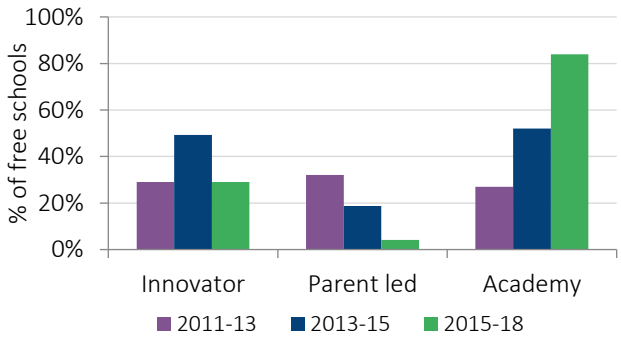
Figure 2.2 Parental involvement in primary free schools is lower than seen the secondary phase



The gaps in English as an additional language rates also existed at primary and all-through level, but these were less pronounced than in secondaries. The average for innovators was 28 per cent compared to 32 per cent for non-innovators; 33 per cent for MAT led free schools versus 27 per cent in primary free schools not in a MAT; and 27 per cent in parent led primary free schools compared to 31 per cent in non-parent led free schools. MAT led free schools had slightly higher proportions of FSM (an average of 15 per cent to 13 per cent), and innovators slightly lower (13 per cent on average compared to 15 per cent). However, there was a marked gap at parent led schools, with an average FSM rate of 9 per cent compared to 15 per cent in non-parent led schools.

Patterns over time amongst primaries and all-through schools (Figure 2.3) is similar to secondaries, though the decline of parent involvement and rise of academy involvement is even more pronounced.

Figure 2.3 The proportion of free schools set up by academy chains has increased over time



Discussion

This data suggests that the free school structure has often acted as a vehicle for the establishment of faith schools, the conversion of independent schools, and the expansion of existing MATs. While these may be valuable in themselves, it has resulted in a dilution of the free schools concept and mitigated their distinctiveness. Free schools have now become the default model for new schools, with all new academies characterised as such.

The extent of their reach has also been limited, both by enthusiasm and by the high costs to government of setting one up. This has limited their impact on the school sector as a whole, in the manner that academisation did. Many commentators at the time argued that unless profit-making providers were allowed to run schools, the prospects for a promised radical overhaul of schools were slim (Ryan, 2010b). Indeed, initial levels of demand to set up free schools was sluggish, with only around 75 established in the first two years of the policy. The real boost in numbers occurred when all new academies were required to be free schools. This demand from academy trusts to set up new schools is encouraging, particularly as a vehicle for information sharing across schools, however, as Sutton Trust research has consistently shown, there is wide variation among academy sponsors in terms of quality of provision and ability to deliver school improvement (Francis and Hutchings, 2017).

Far from heralding a radical new model for schooling in England, free schools represent an evolution of the existing academy programme, and while facilitating pockets of innovation, it has not been transformative. When free schools were established in Sweden, it was part of a wider policy of radical decentralisation, including deregulation of teacher pay, school funding, and testing regimes (Allen, 2010).

Increasingly, free schools are neither led by parents nor are particularly innovative in their approach to the curriculum, but instead they are de facto academies, set up by existing academy trusts. Many of the schools established could have been set up under existing structures. Even at an early stage in the process there had been indications that the emerging free school programme in England was a distance away from "free schools on the Swedish model, where profit-making companies respond to parental demand, and where there was no tradition of the sort of diversity offered by academies, foundation and voluntary-aided schools" (Ryan, 2011a). This has certainly been borne out in subsequent years, as free schools continue to face something of an identity crisis. However, despite this, are free schools nonetheless fulfilling the basic need for school places?

Case Study 4: Free school opened by an existing MAT, Dixons McMillan Academy

Academy chains are only able to take on schools by one of two routes, either by converting an existing maintained school into an academy, or by opening a new free school. The application to open the Dixons McMillan Academy was sponsored by established academy chain, Dixons Academy Trust, to add a new school to their growing chain.

Dixons Academy Trust was set up in in the early 1990s and was originally sponsored by the electronics company Dixons. The company is still involved with the chain, but the academy chain now operates and is financed independently, running several schools in and around Bradford and Leeds. At the time that Dixons McMillan Academy was opened in Bradford, it was the seventh school run by the chain. The chain now comprises of nine primary, secondary and all-through schools. Five of Dixon Academy Trust's schools are free schools, with Dixons McMillan Academy the third free school which was set up by chain.

Dixons McMillan Academy was opened in September 2014. It occupies the McMillan building in Bradford city centre, previously occupied by Bradford College. However, for the first year the school was open, they were not able to move into the building, as renovation work was ongoing. Before the school could move into its own building, the free school used space in another one of the chain's nearby schools, Dixons Trinity Academy.

Many of the school's senior leaders were recruited from other schools in the chain. Since the school was established, teachers from the school meet regularly with other teachers from across the academy chain to share ideas and best practise. The school's headteacher, Mr Wesley Davies, was previously deputy-headteacher at Dixons Trinity Academy, which was the first secondary free school to be rated as outstanding by Ofsted. Dixons McMillan was also rated as outstanding in its first Ofsted inspection in 2017, although no data is yet available on Key Stage 4 exam results at the school. In the last academic year, 30 per cent of the school's pupils had been eligible for FSM at some time in the last six years, and 38 per cent had English as an additional language.

3 Are free schools being set up in areas where they are needed?

The issue of whether free schools are being set up in areas where there is a need for more school places or in areas where there is a lack of good school places has been a matter of some debate since the free school programme began. In 2013, the National Audit Office reported that while most primary and secondary free schools places were being opened in areas that were forecasting some need for places (NAO, 2013), application levels from areas of high or severe need have been mixed. More recently, the Department for Education has said that a large majority of the free school applications that were approved in waves 5-11 were set up in areas with a basic need for more school places (DfE, 2016). In this section, we take a fresh look at where free schools have opened and what impact they have had on capacity within their local planning areas.

There are several policy options available to a local authority if they have a planning area where the demand for pupil places is forecast to exceed available capacity. A temporary and fairly rapid solution is to introduce a bulge class in the entry year of one or more of the schools in the planning area. If additional need is forecast to be sustained for the foreseeable future, another option is to expand an existing school in the planning area by adding one or more permanent classes to it. Alternatively, a new free school could be proposed and, subject to approval from the Department for Education, opened.

In order to establish whether free schools had been opened in areas of need, we examined the five year forecast need as a ratio of available capacity within the planning areas where free schools had been set up. Given the time lag involved with establishing a new institution, we examined this ratio two years prior to the free school opening, which we approximated to be the average length of time from the decision point to free schools opening. See the methodology section for more detail.

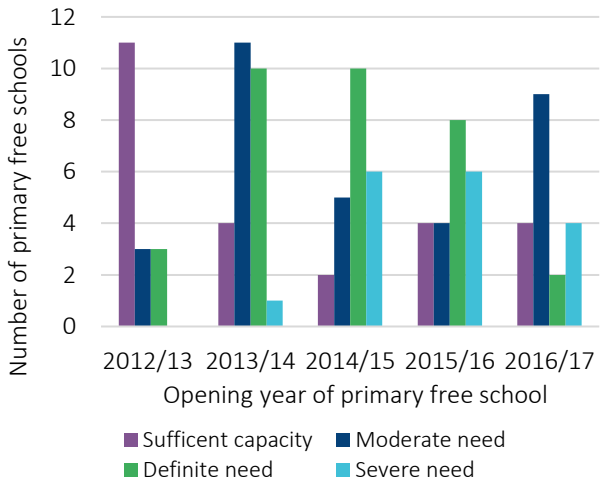
For each planning area, the ratios were then classified based on their severity of forecast need to available capacity, as follows:

- **Sufficient capacity** - where forecast demand is 95 per cent or less of available capacity
- **Moderate need** - where forecast demand is between +/- 5 per cent of available capacity
- **Definite need** - where forecast demand exceeds capacity by 5 per cent up to 20 per cent
- **Severe need** - where forecast demand exceeds available capacity by 20 per cent or more

Primary free schools have largely been set up in areas where there is forecast need

We start by looking at what the driver for opening up a primary free school was. Figure 3.1 shows that of the 17 primary free schools opened in 2012/13, in the early days of the new policy, 11 were set up in planning areas which had sufficient capacity to meet their forecast need. However, this pattern reversed in 2013/14.

Figure 3.1 The majority of primary free schools have largely been set up in areas with a basic need since 2013/14



Some free schools have been opened in primary planning areas where there is already sufficient capacity, so we can assume they were not set up to cater for rising pupil numbers? Can we derive any further insights from the data about what the possible drivers may have been?

One of the government's aims of the programme is to improve pupil attainment by introducing greater competition. One possibility for opening free schools in areas which already have sufficient capacity may therefore have been to drive up low standards in these planning areas. To assess this, we looked at the performance of the six primary schools which were closest to the location where a new free school was being proposed. As before, this assessment was made at the point when the decision was being taken about whether to approve an application, which we estimated to be two years prior to its actual opening – see the methodology section for more details.

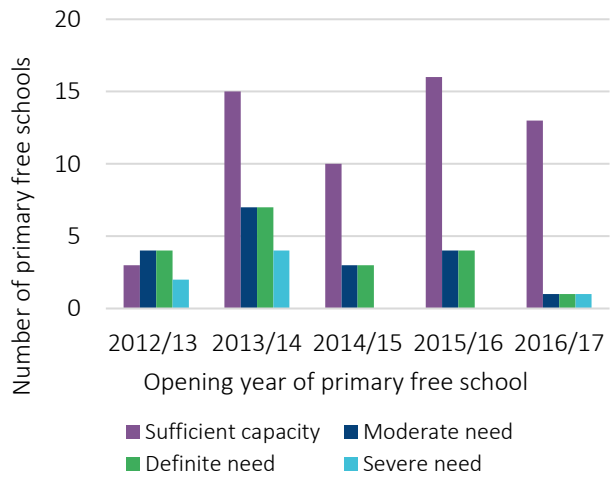
Our analysis shows that of the 25 primary free schools that were set up in planning areas with sufficient capacity since 2012/13, nine were established in areas where at least half the nearby schools were low performing. This suggests that the rationale for creating these free schools may have been linked to raising local school standards.

Of the 16 remaining primary free schools that were set up in planning areas with sufficient capacity, one was previously an independent school and four were faith schools. The former independent school was already established in its location and its motivation for changing status is likely to be for reasons other than responding to local need or driving up local standards. Similarly, faith schools are likely to have been set up with the primary aim of attracting pupils of that faith from across the local area.

Opening a primary free school has helped create sufficient capacity to meet the forecast need

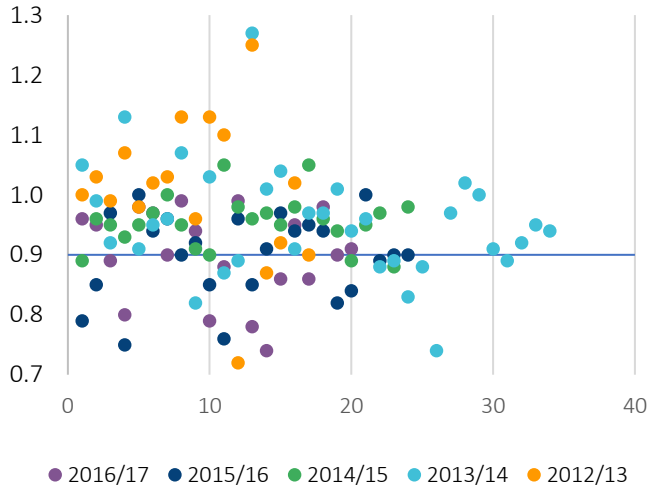
The impact that the opening of a new free school has on alleviating capacity concerns in a planning area is generally positive. As shown in Figure 3.2, about half of the planning authorities who had a free school had sufficient capacity once it had opened. The other planning areas require further capacity to meet their forecast needs, but there is still time to address this.

Figure 3.2 The opening of a primary free school in a planning area generally helps to alleviate any basic need issues



However, we find that some planning areas which have opened a new free school now have excess capacity. Figure 3.3 shows the ratio of forecast need to available capacity in planning areas in the year when a free school opened. While the majority of planning areas are grouped in the 0.9 to 1.1 range, there are also a number where the ratio is 0.9 or less, where available capacity exceeds forecast need by at least ten per cent. There are several possible reasons why a planning area may have ended up in a position of surplus capacity. This could be because a free school was opened in an area which already had sufficient capacity, or too much additional capacity has been created, or because the initial forecasts of future pupil numbers which were used to inform decisions about adding additional capacity were too high.

Figure 3.3 Some primary planning areas now have too much capacity

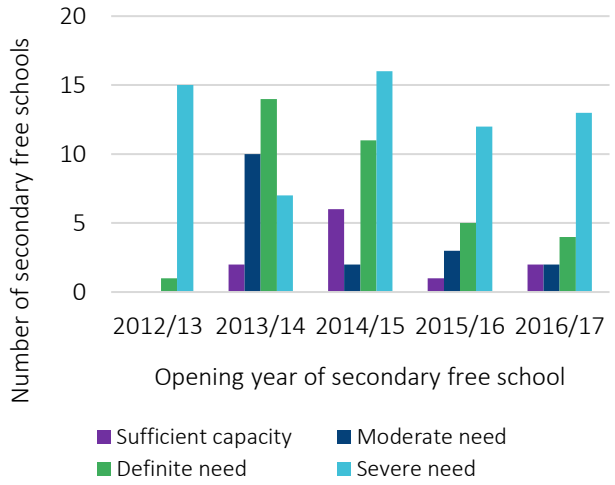


Having excess capacity in a planning area can generate new issues. The schools within them will be in direct competition to attract sufficient pupils to fill their available spaces. Schools which fail to attract a full complement will receive less funding, which may lead to financial pressures such as needing to draw down on reserves or make budget cuts. Prompt action will need to be taken in these planning areas to reduce surplus capacity, to avoid these issues from arising.

Secondary free schools have also largely been set up in areas of need, but more capacity is needed

We conducted the equivalent analysis for secondary free schools. As shown in Figure 3.4, almost all of the secondary planning areas which had a free school application opened in the period 2012/13 to 2016/17 had insufficient available capacity to meet its forecast need for secondary pupil places. Around half of these planning areas were in severe need, where the forecast need for pupil places was at least 20 per cent higher than the amount of available capacity in the planning area. This contrasts to the primary phase, where 16 per cent of planning areas which had a free school approved had a severe need for additional capacity to meet the forecast need.

Figure 3.4 Most secondary free schools have been set up in areas with a severe basic need

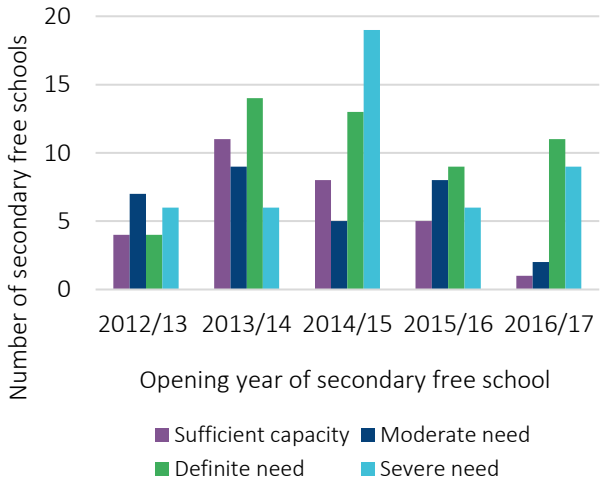


While new secondary free schools have helped to create extra capacity, much more is needed

When we examine the ratio of forecast need to capacity when a secondary free school opened, we find they have helped to create extra capacity in those planning areas. However, Figure 3.5 shows there remain many secondary planning areas that are still in definite or severe need. This is likely to be due to the anticipated large rise in secondary pupil numbers which are forecast to increase by nearly 400,000 between 2017 and 2022. This means that a lot more secondary capacity will continue to need to be created.

How can this additional capacity be created? One possibility may be to identify primary planning areas with significant excess capacity and explore whether some of their land / buildings could be re-assigned for use in setting up new secondary free schools or expanding an existing secondary school.

Figure 3.5 Despite the opening of a new free school, most secondary planning areas remain in basic need



In summary, we find that primary and secondary free schools have largely been set up in areas which were forecast to have a need for more places at the time the decision to approve them was made. Around half of the primary planning areas had sufficient capacity to meet their forecast need for pupil places once the free schools had been opened. However, this was not the case in the most of the secondary planning areas where a free school has opened, and further additional capacity will be needed.

4 What are the characteristics of pupils who attend free schools?

Free schools have been set up in a diverse range of areas across the country. In this section, we consider whether the pupils who attend these free schools are representative of their catchment areas. In particular, we investigate the ethnicity, deprivation level and where English is an additional language for free school pupils.

To assess the extent to which free schools are representative of their catchments, we compare the profile of the pupils admitted to a free school with those who could have been admitted. We create school catchment areas using three years of admissions data, which we use to look at the areas from which schools actually recruit pupils. We thus create a flexible and realistic picture of where schools actually draw their pupils from, rather than using administrative boundaries or distance-based methods. Further details on the method we have used to construct these catchment areas can be found in the methodology section at Appendix A.

To assess how the pupils in a school compare to its catchment area, we measure the proportion of pupils with different characteristics who have been admitted in the intake year over three years between 2014/15 and 2016/17, and compare this to the proportion of pupils in those years in the school's catchment area who have those characteristics.

Primary and secondary schools were treated as two distinct groups for this analysis. As all-through schools fall into both categories, data relating to the primary and secondary intake cohorts of these schools were separated and analysed within the relevant group.

Ethnicity

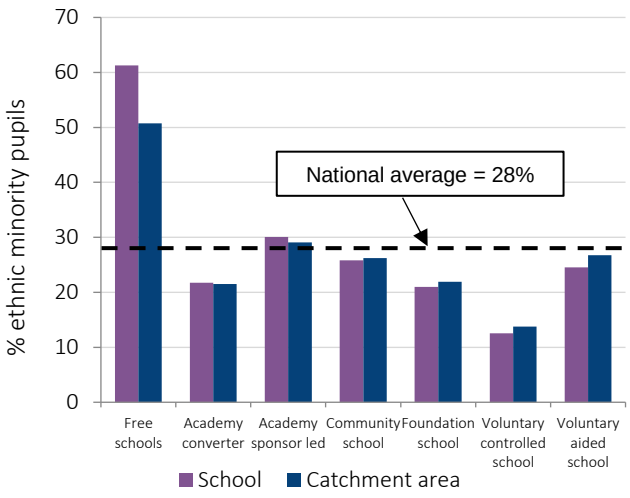
Primary free schools have a much higher proportion of ethnic minority pupils than all other school types

As shown in Figure 4.1, primary free schools attract large proportion of pupils from an ethnic minority background. On average, 61 per cent of pupils admitted in the academic intakes 2014/15 to 2016/17 in primary free schools come from an ethnic minority. This is twice the level that the school type with the next highest proportion of pupils from an ethnic minority has. It is also more than two times the level of ethnic minority pupils in primary schools nationally.

This is likely to be largely due to primary free schools being set up in areas of the country where much of the local population also comes from an ethnic minority background. As Figure 4.1 shows, just over half of the pupils living in a primary free school catchment area, who could potentially go into the school's reception, come from an ethnic minority background. In contrast, the proportion of pupils from an ethnic minority background in each of the other school types is less than 30 per cent on average.

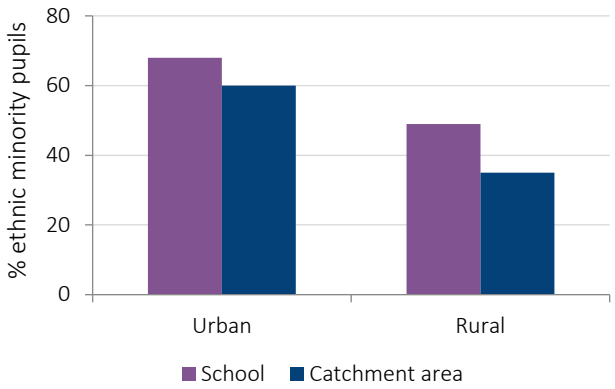
Figure 4.1 also shows that on average, the percentage of ethnic minority pupils in primary free schools is 10 percentage points higher than their catchment areas. This suggests that while the make-up of the catchment area populations are likely to be an important factor in explaining why they have much higher proportions of ethnic minority pupils, this is not the only explanation. Another factor appears to be that primary free schools are admitting a greater share of pupils from these backgrounds.

Figure 4.1 Primary free schools have much higher levels of pupils from an ethnic minority than all other school types



The large percentage of ethnic minority pupils in primary free schools may partly be due to nearly two-thirds of them being located in urban areas, including London, where the local population tends to be more diverse. Figure 4.2 confirms that primary free schools in urban areas have higher proportions of pupils from an ethnic minority background living in their catchment areas (60 per cent in urban catchment areas compared to 35 per cent in rural areas).

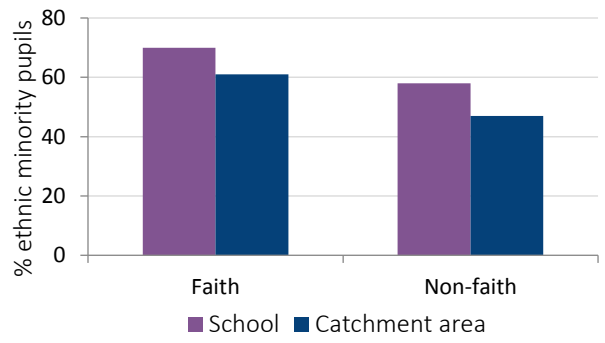
Figure 4.2 Primary free schools in urban areas have higher levels of ethnic minority pupils



However, both urban and rural primary free schools admit larger proportions of ethnic minority pupils than exist in their catchments. This suggests that the free school's setting is not the principal driver for taking greater numbers of ethnic minority pupils.

Another possible reason why free schools have higher levels of pupils from ethnic minorities could relate to the types of new primary free schools with a faith ethos that have been set up. Around one quarter of primary free schools have a faith ethos, which is much lower than the 37 per cent of faith schools in the wider primary school population in England (DfE, 2017a). However, while 99 per cent of primary faith schools in England follow a Christian faith, about half of the new primary free schools with a religious ethos have been set up by non-Christian faiths – for example, the Muslim, Sikh and Hindu faiths. In primary free schools with a religious ethos, 61 per cent of pupils in their catchment areas come from an ethnic minority compared to 48 per cent in catchments of primary free schools without any religious character (Figure 4.3). Therefore this could be one of the factors which explain why primary free schools have high proportions of ethnic minority pupils in their catchment areas.

Figure 4.3 Primary faith free schools have higher levels of ethnic minority pupils

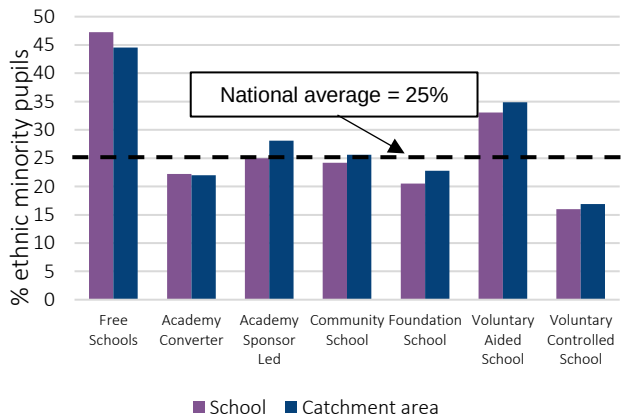


However, it is also the case that both faith and non-faith primary free schools tend to admit greater proportions of pupils from these backgrounds than exist in their catchment areas. Therefore having a religious ethos does not in itself appear to explain why they take greater numbers of pupils from these backgrounds.

Secondary free schools also admit the highest proportions of pupils from an ethnic minority

As shown in Figure 4.4, 47 per cent of intake pupils in secondary free schools are from an ethnic minority background, compared to 25 per cent of intake pupils in secondary schools nationally.

Figure 4.4 Secondary free schools have higher levels of pupils from an ethnic minority than all other school types

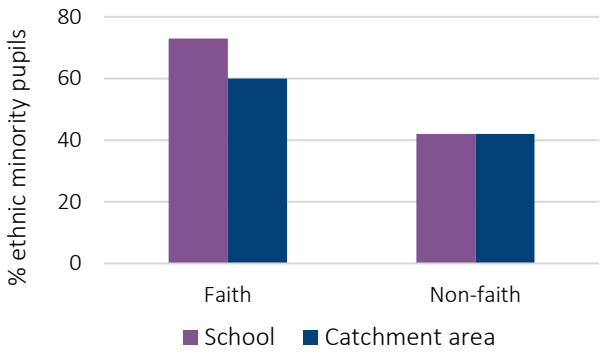


This may be in part due to a higher proportion of secondary free schools having been established in a major urban area, particularly in London. Secondary free schools established outside a major urban area have a far lower ethnic minority intake at 31 per cent, albeit this is still 17 percentage points higher than the level in non-urban secondary schools nationally.

Furthermore, as with the primary phase, many of the new secondary free schools with a faith ethos have been set up by non-Christian faiths – in particular, the Muslim and Sikh faiths. Of the 21 secondary free schools with a faith ethos, more than half were from a non-Christian faith.

Figure 4.4 shows that as in primary free school phase, secondary free schools also appear to admit more pupils from an ethnic minority background compared to their catchment areas, although the difference is slightly less. However, this trend appears to be largely isolated to secondary free schools with a faith ethos (Figure 4.5). In contrast, secondary free schools with no specific faith ethos are more closely aligned with their catchment areas.

Figure 4.5 Secondary free schools with a faith ethos tend to have more ethnic minority pupils compared to their catchment



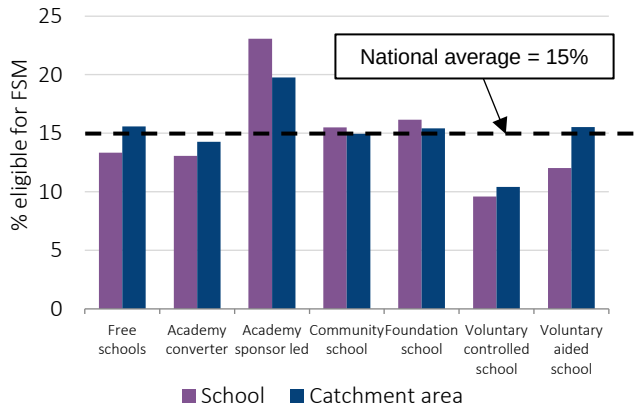
Disadvantaged pupils

Primary free schools admit fewer disadvantaged pupils compared to their catchment areas

In this section, we look at the level of disadvantage in free schools compared to their catchment areas. We use pupils that have been eligible for FSM at some point in the last six years and Income Deprivation Affecting Children Index (IDACI) scores of pupils as our two measures of disadvantage.

As shown in Figure 4.6, the percentage of intake pupils who are eligible for FSM in primary free schools is slightly below the national average for those intakes (13 per cent compared to 15 per cent). It is also lower than the average FSM rate amongst intake pupils in their catchment areas, which is 16 per cent, suggesting primary free schools are slightly under-selecting FSM pupils. But they are not alone in this regard: other school types are also under or over by similar amounts.

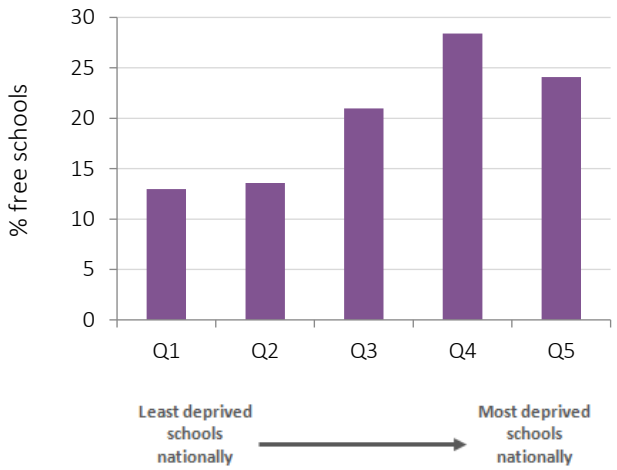
Figure 4.6 Primary free schools have slightly lower levels of disadvantaged pupils compared to their catchments



The IDACI index can also be used to estimate the socio-economic make up of an area, based on levels of income deprivation. Each primary school is given a rating, which is the average IDACI score for all of the pupils in their intake. These school level IDACI scores are ranked from highest to lowest, and divided into five equal groups or 'quintiles', indicating their overall levels of deprivation.

Figure 4.7 shows the distribution of primary free schools across these IDACI quintile, with quintile 1 comprising schools with the lowest 20 per cent of school IDACI ratings (least deprived) and quintile 5 containing schools with the highest 20 per cent of scores (most deprived). If the intake pupils attending primary free schools reflected the wider population, we might expect about 20 per cent of these schools to fall into each quintile. However, Figure 4.7 shows that more than half (53 per cent) of the primary free schools fall into the two highest deprivation quintiles. This suggests that a disproportionate number of primary free schools pupils live in the most deprived areas of the country.

Figure 4.7 Primary free schools disproportionally comprise pupils from the most deprived areas



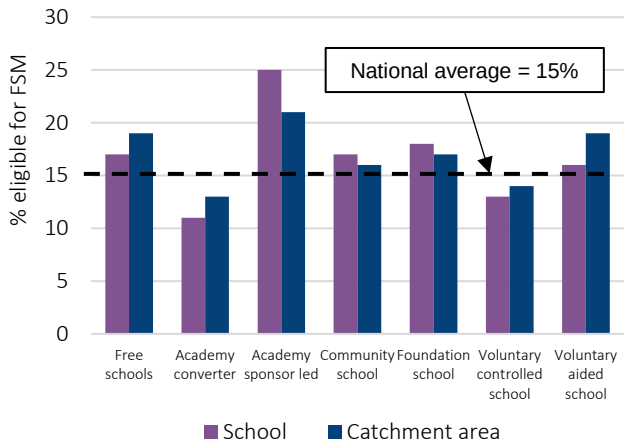
That primary free school pupils are more likely to come from the most deprived areas appears to be at odds with the finding in Figure 4.6 that primary free schools have lower levels of disadvantaged pupils compared to their catchment areas. This may several explanations for this. It may be because there are large amounts of variation in the proportion of pupils eligible for FSM in primary free schools, which the FSM average rate shown in Figure 4.6 is disguising. Alternatively as FSM eligibility is based on personal family circumstances and IDACI measures the level of deprivation in a geographic area, it may be that primary free school pupils who live in the most deprived areas are themselves not disadvantaged. Another possibility may be that being relatively new,

free schools are not yet as prepared as other schools are to support parents to make FSM claims for their children.

Secondary free school pupils are more likely to receive FSM than pupils nationally

As shown in Figure 4.8, secondary free schools have a slightly higher proportion of pupils eligible for FSM than the national average (17 per cent compared to 15 per cent). However, they have lower levels of disadvantaged pupils based on FSM eligibility than their catchment areas (19 per cent). This suggests that while their catchment areas have among the highest levels of pupils eligible for FSM of all school types, these disadvantaged pupils are less likely to go to their local secondary free school.

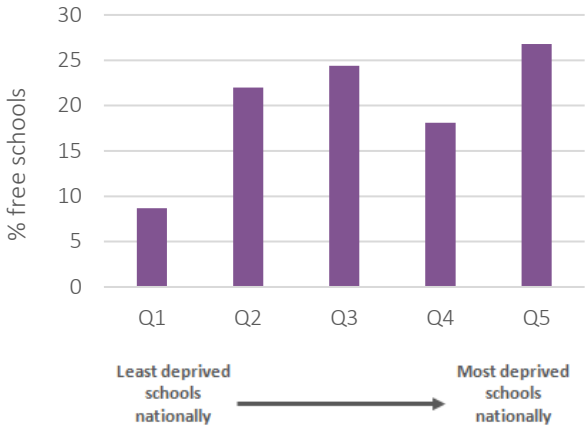
Figure 4.8 Secondary free schools have slightly lower levels of disadvantaged pupils than their catchments



When we use the IDACI index to assess the scale of deprivation among secondary free school pupils, we find that only nine per cent of secondary free schools are in the least deprived quintile, whereas 27 per cent fall into the most deprived quintile (Figure 4.9). However, there are fewer pupils in secondary free schools living in the two most deprived quintiles (45 per cent) compared to the primary phase (53 per cent), as well as more pupils living in the top two deprived quintiles (31 per cent compared to 27 per cent in the primary phase).

As with the ethnicity findings, part of the reason that secondary free schools have higher than average proportions of disadvantage pupils than the national average may be due to the predominance of secondary free schools in urban areas. On average, 21 per cent of pupils of urban secondary free schools are eligible for FSM, compared to only 13 per cent in more rural free schools.

Figure 4.9 Secondary free schools disproportionally comprise pupils from the most deprived areas

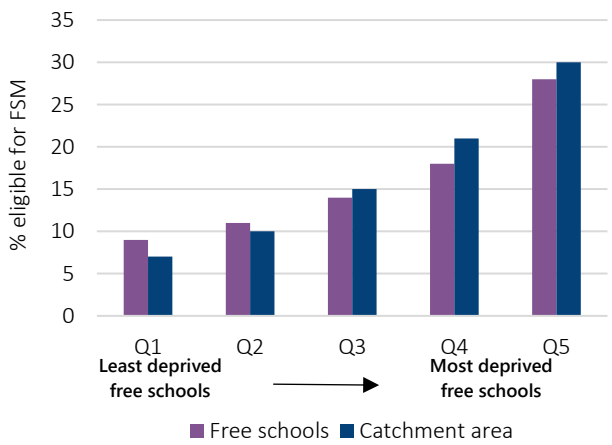


More disadvantaged secondary free schools have lower levels of FSM pupils than their catchments

We have also looked at how deprived secondary free school pupils are compared to their catchment areas. To do this, we ranked all secondary free schools according to their average IDACI score per pupil and divided them into quintiles and have calculated average rates of FSM eligibility for the schools and catchment areas in each quintile – see Figure 4.10.

We find that the most deprived secondary free schools actually have slightly lower proportions of pupils eligible for FSM than their catchment areas. Interestingly though, the opposite is true of secondary free schools in the least deprived quintiles which have slightly higher levels of FSM pupils than their catchment areas, albeit that the average FSM rates for these schools are much lower than the national average.

Figure 4.10 The more disadvantaged secondary free schools have slightly lower levels of FSM pupils than their catchments



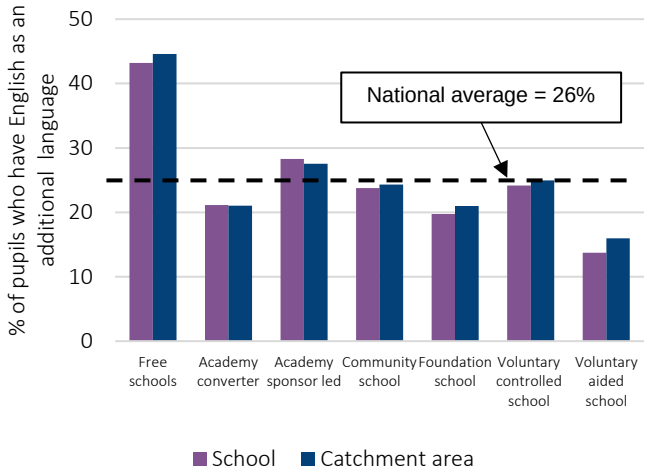
English as an additional language

Another characteristic that we looked at as part of our analysis comparing free schools to their catchment areas was the proportion of pupils with English as an additional language.

The picture is much the same for both the primary and secondary phases. As shown in Figure 4.11, the proportion of intake pupils with English as an additional language in primary free schools is much higher than it is for all other school types. It is also well above the national average for the same pupil intakes, which is 26 per cent.

This pattern is very similar to the one we found when we examined ethnicity. There we found that primary free schools attracted much more pupils from an ethnic minority background than other school types did. This might be expected given the relationship ethnicity and exposure to languages other than English in the home.

Figure 4.11 Primary free schools attract far more pupils with English as an additional language



As shown in Figure 4.12, the picture for pupils with English as an additional language in secondary schools is similar to the primary phase, albeit the differences between secondary free schools and other school types are smaller. Again, the pattern is similar to what we found when we looked at the proportion of pupils from an ethnic minority background who went to a secondary free school.

Figure 4.12 Secondary free schools also attract more pupils with English as an additional language

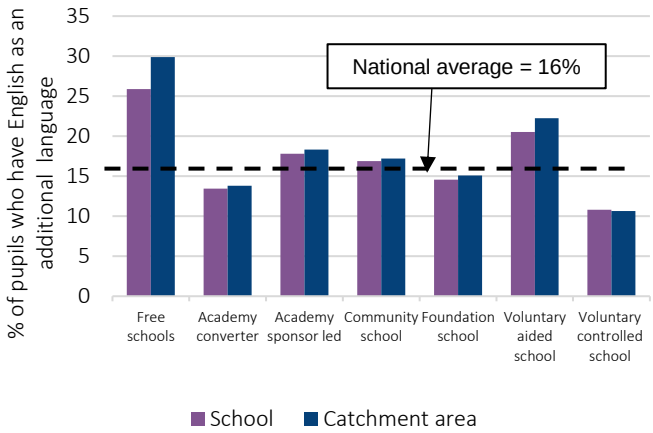


Figure 4.12 also shows that secondary free schools have lower levels of pupils with English as an additional language compared to their catchment areas. The gap is largest by far compared to other school types. However, this difference is negligible for primary free schools.

It will be important to monitor the trends in these different characteristics in future as free schools become more established, to ensure that the most deprived pupils do not benefit less than others from the continued development of new free schools. There should be a consistent expectation that free schools actively recruit disadvantaged and other underrepresented groups, so that they reflect the diversity of their local communities.

5 How popular are free schools with parents?

There has been much interest and discussion about how successful free schools are since they were set up in 2011. In the early years, in the absence of any attainment or inspection data to draw on (which takes years to build up), the Department for Education looked at the number of applications made to free schools as a measure of their success. In 2011, they reported that two thirds of the first 24 free schools were oversubscribed for their first year, while demand for some free schools was three times more than places available (DfE and Hill, 2011). Then in 2014, the Department for Education ran a survey of free schools and again reported that they were proving hugely popular with parents, with almost three applications for every place (DfE, 2014). And most recently, in September 2017, the Department for Education again said that free schools were popular with parents (DfE and Nash, 2017). However, other groups (for example, EPI, 2017) have suggested that the available data suggests that free schools are not popular with parents.

Which one of these conflicting claims is correct? As part of this research project, we have taken a closer look at the available data to make our own assessment. We have used the Department for Education's own school preference and school capacity data, both of which relate to the 2016/17 academic year.

Popularity of primary free schools

There are several approaches that can be used to assess a school's popularity. One approach may be to measure the average number of total preferences made by parents to free schools. However, while this measure is easy to understand, it is hard to interpret what the data is showing. This is partly because parents are able to choose a maximum of three to six schools depending on which local authority they live in. Furthermore some parents may choose fewer schools than they are allowed. For example, is the 2.7 applications received per free school place that the Department for Education reported in 2014 higher or lower than might be expected, given that many of the first free schools opened in London where local authorities give parents up to six choices?

Another way of assessing popularity is to look at the number of first preferences that a school receives. The main advantage of this method is that it should provide the greatest insight into what the parents' most favoured school is; any subsequent preferences may be seen as backup choices.

In our analysis, we examine the average number of first preferences received to assess the popularity of free schools. An alternative variation which has been used elsewhere is to express first choice preferences as a proportion of total preferences received, but we discounted this as it could potentially be distorting if a type of school received a greater number of total preferences on average compared to other school types. This may be the case for free schools, which are disproportionally based in London, where parents are able to express up to six preferences.

Another factor which parents may consider when choosing a preferred school for their children is the likelihood of being offered a place. This in part will depend on the number of places available in the school and the number of preferences expressed for those places. Given these, we consider two additional measures to assess free school popularity, namely:

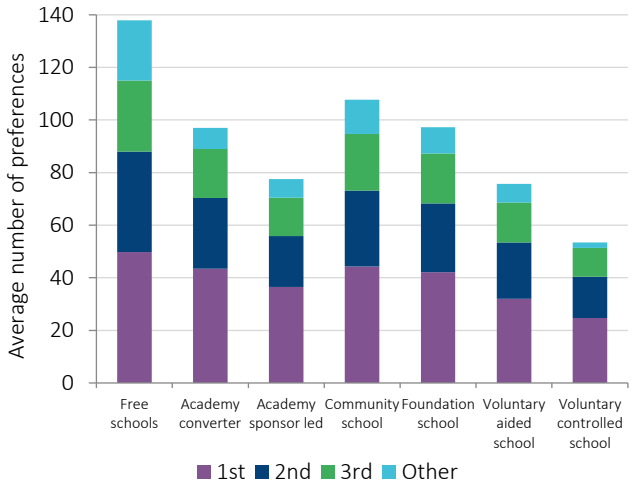
- The ratio of first preferences received to the number of pupil places in the school's intake year
- The ratio of the number of first to third preferences received to the number of pupil places in the school's intake year.

Primary free schools receive more first preferences on average than all other school types

Figure 5.1 shows that primary free schools received more first preferences on average than any other school type. Primary free schools also received more second, third and other preferences, which suggests that they are the most favoured back-up choice with parents. Taken together, free schools received 138 total preferences on average in 2016/17, which is greater than any other school type. This suggests that there is a good degree of interest from parents in primary free schools. This pattern was also replicated in the 2015/16 school preference data, which suggests this is not a recent phenomenon.

If, however, first choice preferences are expressed as a proportion of total preferences received, primary free schools would have the lowest ratio of all school types. This measure would give a very different and false impression about how popular free schools are relative to other school types.

Figure 5.1 Free schools received both more first and total preferences in 2016/17



Further analysis of the preference data suggests that there are differences between primary free schools which are located inside and outside of London. While each group receives an identical average number of first preferences, converter academies, foundation and community primary schools in London all receive more first preferences on average than primary free schools. Conversely, primary free schools outside of London receive many more first preferences than any other school type.

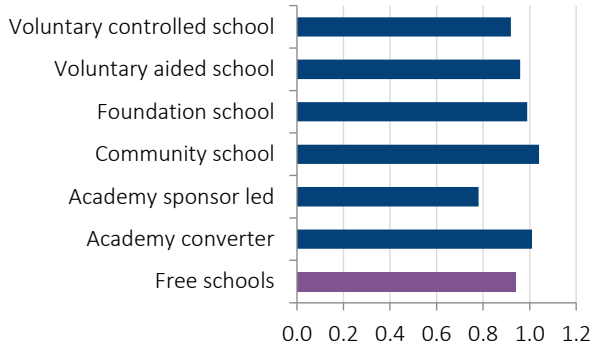
The ratio of first preferences to available pupil places is broadly in line with other school types

When judging the popularity of a school, another important factor to consider is its planned admissions number for its intake year - the schools' capacity in its intake year - to look at whether it is managing to attract sufficient new pupils to fill up the spaces it has available. It is possible that a school might receive a relatively high number of first preferences, and hence appear popular. However, if a school does not fill all its available places, this may lead us to reach a different conclusion about its popularity.

As new schools with no track record, free schools may be more likely than other school types to be operating below capacity in the early years while trying to establish themselves. When we examine first preferences received as a proportion of pupil places available in the school's reception year (Figure 5.2), we find that primary free schools received close to one first preference choice per place available in 2016/17. This is similar to the majority of other school types, with the exception of sponsor-led academies, which receive less than eight first preferences applications for every ten available places.

Another way of assessing whether new primary free schools are establishing themselves is to examine whether they attract more first preferences from parents each successive year after opening, relative to the number of pupil places available. We find that this ratio does indeed increase, on average, the longer primary free schools are open, suggesting that as time passes, they become increasingly accepted by parents as a viable option for educating their children.

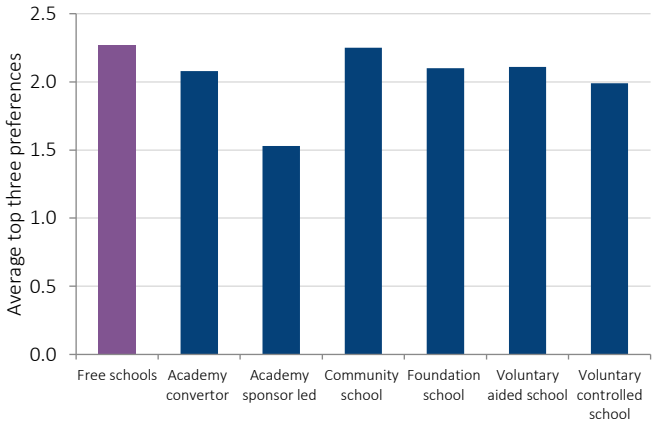
Figure 5.2 The ratio of first preferences to intake capacity for primary free schools is similar to other school types



Primary free schools have the highest ratio of top three preferences to places available

The third measure we look at is the total number of first to third preferences a school receives compared to the number of pupil places it has available in its intake year. As the number of preferences that parents can choose varies between local authorities, restricting our measure to just the top three preferences will enable us to compare schools across the country on a more consistent basis.

Figure 5.3 Primary free schools have the highest ratio of top three preferences to intake capacity



The rationale for including a measure that looks beyond the first preference received is that it provides a broader indication about the extent to which parents have some interest in a school, such that they would consider it as one of their two back-up options should they not get their preferred option. As shown in Figure 5.3, we find that primary free schools have the joint highest ratio of top three preferences to available places of all school types, indicating a high degree of interest in primary free schools amongst parents.

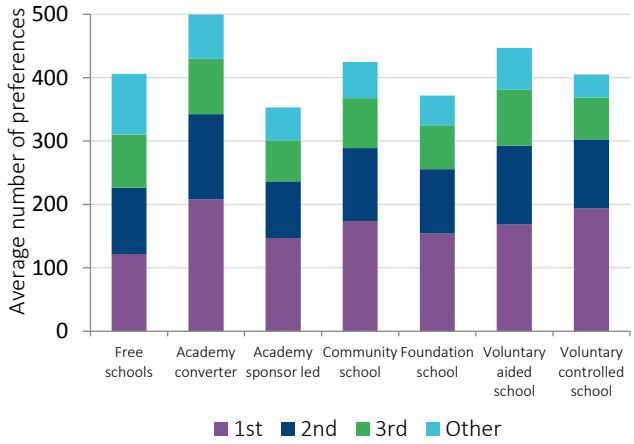
Popularity of Secondary Free Schools

We used the same measures to assess how popular secondary free schools are proving to be with parents. We find there are some differences between the primary and secondary phases.

Secondary free schools receive fewer first preferences than any other school type

In contrast to primary free schools, as shown in Figure 5.4, secondary free schools receive fewest first choice preferences of all school types in 2016/17. Total preferences received by secondary free schools are also lower than several other school types.

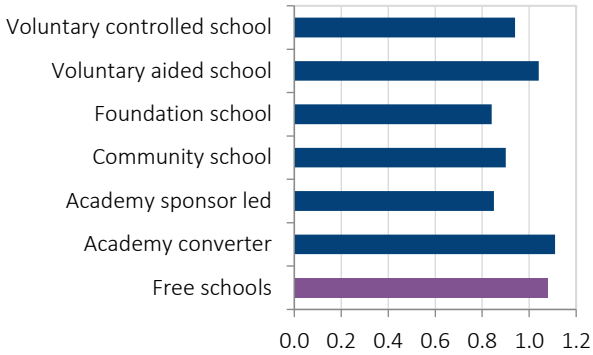
Figure 5.4 Secondary free schools receive the fewest first preferences



However, secondary free schools have amongst the highest preferences to places available ratios

Despite receiving the fewest first preferences and one of the fewest total preferences, we find that after taking into account available capacity, secondary free schools received a greater number of first choice preferences to places available than all but one other school type (Figure 5.5). This equates to approximately 11 first choice preferences per ten places available in secondary free schools. Academy converters are the only school type to exceed this ratio.

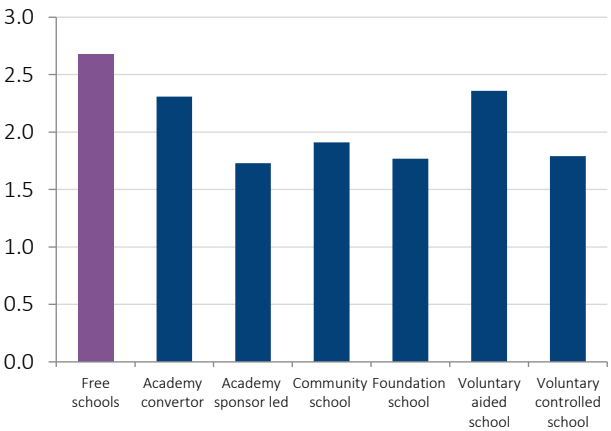
Figure 5.5 Secondary free schools have a comparatively high ratio of first preferences to pupil places available



The relatively high ratio of first preferences to places available for secondary free schools suggests that the number of places available in secondary free school intake years is lower than for other secondary school types. We find that on average this is indeed the case: secondary free schools had 125 places available in their intake year in 2016/17, compared to voluntary aided schools, which had the second lowest average intake size of 163 places, while other all of the school types had nearly 200 places. This may be because some secondary free schools are still building up their capacity and adding extra classes to their intake year as they become more established.

We then looked at our third measure which looks at the number of top three preferences in relation to total capacity in 2016/17 (Figure 5.6).

Figure 5.6 Secondary free schools have the highest ratio of top-three preferences received to pupil places available



Free schools appear to be attracting a good degree of interest from parents

The measures we have used to assess free school popularity suggest that primary free schools appear to attract a high degree of interest from parents. They do not appear to be any less popular than any other school types, despite the fact that they are still establishing themselves.

Likewise, we find that secondary free schools, as a group, are managing to attract sufficient numbers of first preference pupils to fill their current capacity. They also appear to have a good number of parents putting them down as one of their top two back-up options.

Our judgement, based on the measures we have used to assess popularity, is that there is good degree of interest in both primary and secondary free schools from parents, who do see them as a viable option for their children.

6 How do free school pupils perform at Key Stages 2 and 4?

One of the main questions surrounding free schools is how the attainment outcomes of their pupils compare to pupils who attend other mainstream schools. In this chapter, we explore this question and consider what insights we can derive from the available data. We also examine how the attainment outcomes for disadvantaged pupils in free schools compare to disadvantaged pupils with similar characteristics in other schools.

Primary free schools

Only a small proportion of primary free school pupils have Key Stage 2 outcomes

Primary free schools use different approaches to build their pupil numbers when they open. Many start by taking pupils in the reception year and then build up their pupil numbers each year with successive new intakes. As the first primary free schools only opened in 2011/12, pupils who joined their reception class will only be in Year 5 by 2016/17. We therefore do not yet have any Key Stage 2 results for a cohort of pupils who have spent their entire primary schooling being educated by the free school. The first such cohort will take their Key Stage 2 tests in 2017/18.

In contrast to the building up from reception approach, some primary free schools took pupils into multiple school years when they opened. Any pupils who joined these primary free schools after reception will have either changed primary school, arrived from another country, or previously been educated at home. Some of the pupils who joined a primary free school part way through their primary education have since reached Year 6 and sat their Key Stage 2 tests. In 2015/16, 28 primary free schools had 864 pupils with Key Stage 2 outcomes, increasing to 36 schools and 1,241 pupils in 2016/17.

In December 2017, the Department for Education published 2016/17 Key Stage 2 outcomes for pupils who attended primary free schools (DfE 2017b). As Table 6.1 summarises, 54 per cent of primary free school pupils achieved the expected standard in reading, writing and maths in 2016/17, which is lower than the 61 per cent of pupils nationally who reached the expected standard. Pupils in free schools also made less progress in each subject than pupils nationally.

Table 6.1 also shows that greater percentages of pupils in academy converters and local authority maintained schools achieved the expected standard in reading, writing and maths compared to pupils in free schools and made greater progress.

Table 6.1 Attainment and progress outcomes at Key Stage 2 by school type

	Expected standard reading, writing & maths	Progress score in reading	Progress score in writing	Progress score in maths
All state funded mainstream	61%	0.0	0.0	0.0
Free schools	54%	-0.7	-0.1	-0.5
Academy converter	65%	0.1	0.1	0.1
Academy sponsor led	52%	-0.8	0.2	-0.3
LA maintained	62%	0.1	0.0	0.1

It is too early to robustly and accurately assess Key Stage 2 outcomes for primary free schools

As all of the primary free school pupils with Key Stage 2 results to date will have had some of their primary education elsewhere, their attainment outcomes will only partially be influenced by attending their primary free school. The attainment outcomes these pupils achieve may not be representative of the future outcomes for pupils who have spent their full primary education in a free school. Furthermore, many of these pupils with Key Stage 2 results will have attended some of the earliest primary free schools set up, which may have differences to those set up later. For these reasons, we are not yet able to robustly assess how free school pupils with Key Stage 2 outcomes compare to those of pupils with similar characteristics who attend other schools.

Free school pupils perform slightly better at Key Stage 4 than similar pupils in other schools

When it comes to measuring outcomes, the position for secondary free schools is better than the primary phase, as those set up in 2011/12 and 2012/13 should have had at least one full cohort of pupils who have spent their entire secondary schooling up to taking their GCSEs at them. In 2015/16, some 1,837 pupils at 32 secondary free schools had taken GCSEs or other Key Stage 4 qualifications, increasing to 3,378 pupils at 54 secondary free schools in 2016/17. This means that we can look at how the attainment of secondary free school pupils compares to pupils with similar characteristics at other schools.

The Department for Education published 2016/17 Key Stage 4 outcomes for pupils in January 2018 who attended secondary free schools (DfE, 2018b). This shows that the average Attainment 8 score[1] for free schools was 48.7 in 2016/17, which is the second highest of all school types. The average Progress 8 score[2] for free schools is 0.15 in 2016/17, which is the highest of all the school types. Comparable national outcomes and outcomes for other school types are shown in Table 6.2.

Table 6.2 Attainment 8 and Progress 8 scores by school type

	Average Attainment 8 score	Average Progress 8 score
All state funded mainstream schools	47.1	0.00
Free schools	48.7	0.15
Academy converter	49.9	0.10
Academy sponsor led	42.2	-0.12
LA maintained	46.0	-0.06

However, the Department for Education's headline results do not take into account any differences in the characteristics of pupils who attend different types of schools, which we have done in our analysis.

In order to provide a more nuanced look at outcomes, we have compared Key Stage 4 attainment of secondary free school pupils to a matched comparison group comprising pupils with similar characteristics in other mainstream secondary schools. Details of our matching methodology is set out in the Methodology note in Appendix A.

2016-17 Key Stage 4 outcomes	Pupils in free schools	Pupils in matched group	Differ-ence	Regression coefficient
Attainment 8 score	**49.4**	**48.7**	**0.7**	**1.52 ***
English slot	10.8	10.5	0.3	0.51 *
Maths slot	9.7	9.4	0.3	0.40 *
EBacc slot	13.9	13.3	0.6	0.90 *
Open slots	15.0	15.5	-0.5	-0.29 *
Progress 8 score	**0.19**	**0.09**	**0.10**	**0.12 ***

Table 6.3 Secondary free schools significantly outperform similar matched pupils in other schools in 2016/17

*Note: * = statistically significant*

Table 6.3 reports the findings of our analyses. The first two columns show the raw scores for the pupils in free schools and our matched comparison group. This shows that free school pupils achieve an Attainment 8 score of 49.4, which is slightly higher that the corresponding score for the matched comparison group. Free schools also achieved a Progress 8 raw score of 0.19, which again is higher than the matched comparison group. Amongst the four Attainment 8 'buckets', free school pupils have higher scores in English, maths and the EBacc subjects, while the comparison group performs more strongly in the open slots bucket.

These scores reflect the 'raw' averages for free school pupils and pupils in the matched comparison group. To measure differences between free schools and the comparison group with greater precision, we then built a multi-level regression model which controls for the influence of other pupil characteristics on outcomes.

The final column of the table reflects the regression coefficient values for Attainment 8, its separate buckets and Progress 8, all of which are statistically significant (as signified by the * beside each

[1] Attainment 8 measures the achievement of a pupil across eight qualifications. These fall into four 'buckets', namely English, mathematics (both of which are double weighted), three English Baccalaureate (EBacc) subjects and three other approved qualifications. Note that a one point increase in the Attainment 8 score is equivalent to an increase of one grade in one subject.

[2] Progress 8 aims to capture the progress a pupil makes from the end of primary school to the end of secondary school. It is a type of value added measure, which means that pupils' results are compared to the actual achievements of other pupils with similar prior attainment. Progress 8 is converted to a score per subject during its calculation, so a one point increase in Attainment 8 is equivalent to a 0.1 increase in Progress 8.

regression coefficient). These coefficients indicate that free school pupils achieve an Attainment 8 score which is 1.52 points greater than the pupils in the comparison group, which is equivalent to a grade and a half in one subject. They also achieve a Progress 8 score which is 0.12 greater than the comparison, which means free school pupils achieve about one-eighth of a grade higher than similar pupils who go to other schools.

Disadvantaged free school pupils also outperform their peers in other schools at Key Stage 4

We also wished to assess how disadvantaged pupils in secondary free schools compare to pupils with similar characteristics in other schools. To do so, we repeated the analysis above, creating a separate matched group for disadvantaged pupils who attended secondary free schools. The results are shown in Table 6.4.

Table 6.4 Disadvantaged pupils in secondary free schools outperform their peers in other schools in 2016/17

2016-17 Key Stage 4 outcomes	Disadvantaged pupils in		Differ-ence	Regression coefficient
	free schools	matched group		
Attainment 8 score	**43.9**	**41.7**	**2.2**	**3.01 ***
English slot	9.8	9.3	0.5	0.70 *
Maths slot	8.5	7.9	0.6	0.73 *
EBacc slot	12.2	10.8	1.4	1.59 *
Open slots	13.5	13.7	-0.2	-0.01 *
Progress 8 score	**0.00**	**-0.23**	**0.23**	**0.26 ***

*Note: * = statistically significant*

We find that as with all free school pupils, disadvantaged pupils in free schools outperformed disadvantaged pupils with similar characteristics in the comparison group in their Attainment 8 and Progress 8 scores. All of the results are statistically significant. However, the differences were even greater for disadvantaged pupils: their Attainment 8 score is just over three points higher than disadvantaged pupils in the comparison group, which is equivalent to a higher grade in three subjects. Their Progress 8 score is 0.26, equivalent to a quarter of a grade higher in each subject compared to disadvantaged peers in the comparison group.

It is early days in terms of Key Stage 4 attainment outcomes for secondary free schools. While this initial evidence appears promising, the number of free school pupils with Key Stage 4 outcomes is still relatively small and could be subject to change as more pupils take their Key Stage 4 exams at free schools in future, and as the nature of free schools change as they become more established. Care should therefore be taken when interpreting these results.

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Appendix A: Methodological note

Chapter 2: What types of free school have been set up?

Schools in scope

The types of secondary schools included within the scope of this analysis are as follows: free schools, academy converters, academy sponsor-led, community schools, foundation schools, voluntary aided schools and voluntary controlled schools. Special schools and alternative provision schools are excluded, as are university technical colleges and studio schools. Schools are included if their statutory age would enable them to have a Key Stage 2 or a Key Stage 4 cohort of pupils.

The parent-led and innovation categories involved qualitative and potentially subjective judgments. In both cases, in order to improve reliability, schools were blind coded by two researchers, and where the two assessors were found to have disagreed, the collected evidence was reassessed and schools sorted into a consensus category.

Information for the case studies was collected from the same set of publicly available sources, and additional materials were sought from interviews with schools directly.

Typology

School typology	Method used to identify school
Independent schools	These were identified using the Department for Education's 'Get Information About Schools' website.
Faith schools	These schools were those designated as such on the Department for Education's 'Get Information About Schools' website.
'New academy' schools	These were those which were identified on the Department for Education's 'Get Information About Schools' website as belonging to a MAT in their year of set-up, and were not the first school in that trust. In more recent cases, this was supplemented with direct evidence from school websites.
Parent-led schools	These were established by looking at school websites, local news sites and New Schools Network resources to identify where parents had been instrumental in initiating the set-up of a school, sometimes alongside other groups such as teachers.
Innovator schools	These were categorised as schools which demonstrated an innovative concept which was central to their identity and ethos, and was widely embedded in the curriculum or school activities. For example, while simply stating a specialism in STEM was not enough, evidence that the school as a whole was oriented around science and technology and whose central aim was to work with local businesses to fill STEM employment needs, were counted. School websites, prospectuses, local news sites and the New Schools Network website were used to source such evidence.

Chapter 3: Are free schools being set up in areas where they are needed?

Establishing whether free schools were opened in areas of need

To determine the level of forecast need, we used underlying data on school capacity and future levels of need in planning areas, which the Department for Education publish as part of their School Capacity Statistics release package. As the latest school capacity data relates to the 2016/17 academic year, we have not been able to assess whether free schools which opened in the 2017/18 academic year have been opened in areas of need.

For both primary and secondary free schools, we calculated the level of forecast need as a ratio of capacity within the planning areas that free schools had been set up in. As we were interested in what the ratio of future need to capacity was at around the point the decision had been made to approve a free school application, we calculated the ratio two years prior to when the free school opened. We believe this approximates the average length of time from the decision point to the establishment of a free school in a planning area. As an example, for a free school which opened in 2015/16, we collated planning area capacity data for two years prior (i.e. 2013/14) and forecast need data five years ahead (i.e. 2018/19). The ratio for the planning area was then calculated by dividing forecast need by capacity. Then for each planning area, the ratios were then classified based on their severity of forecast need to available capacity, as follows:

- Sufficient capacity - where forecast demand is 95 per cent or less of available capacity
- Moderate need - where forecast demand is between +/- 5 per cent of available capacity
- Definite need - where forecast demand exceeds capacity by 5 per cent up to 20 per cent
- Severe need - where forecast demand exceeds available capacity by 20 per cent or more.

The Department for Education only started publishing planning area level forecasts of pupil places in the academic year 2012/13. Prior to that, they only published local authority level forecasts. To produce planning area estimates of forecast need to capacity for academic years prior to 2012/13, we apportioned the local authority forecasts to their planning areas according to their share of the local authority's total forecast of pupil places in 2012/13. However, we were unable to produce reliable estimates of this for free schools that opened in 2011/12, so we are not able to say whether they have been set up in areas of need.

Level of need in a planning area after a free school has been opened

We also examined what the status of forecast need to capacity ratio in a planning area once a free school had opened. The process we used was very similar to constructing the forecast need-capacity ratio two years prior to the free school opening. However, instead of using the planning area's capacity data two years prior to a free school opening, we used the capacity data in the year that it opened. To illustrate, using the previous example above, we created the impact ratio from the 2018-19 forecast need data and the capacity data for 2015/16, the year that the free school was set up. Note that the change in the ratio will reflect all of the actions that a local authority might have taken to increase capacity in a planning area, which might be more than just opening a free school.

Free schools opened in low performing areas

Where free schools had not been opened in an area of need, we explored they had been opened in areas where at least half of the local schools were low performing. To do this, we ranked all primary schools as follows:

- Pre 2015 Key Stage 2 indicator – percentage of pupils achieving level 4 or above in reading and maths test and writing teacher assessments
- Post 2015 Key Stage 2 indicator – Percentage of pupils reaching the expected standard in reading, writing and maths

We then split the ranked distribution into five equal groups, or quintiles. We identified the nearest six schools to where the free school was to be set up and matched them to their respective Key Stage 2 performance quintile. Low performing areas were classed as where at least 50 per cent of the closest six schools were in the bottom two quintiles.

Chapter 4: What are the characteristics of pupils who attend free schools?

School catchment areas

School catchment areas were created for schools in scope during analysis. They were formed by combining lower layer super output areas (LSOAs) where at least five of their pupils across three intake cohorts attended the school. Free schools which opened in 2017/18 were excluded from the analysis as data on pupil numbers is not yet available.

Primary: For most schools which had a lower starting age of 4, reception pupil data was used; otherwise year 1 data was used. Some primary schools are very small, which makes it difficult to form catchment areas for them as many did not have any lower super output areas which met the minimum criteria of supplying at least five pupils to a

school. In some cases, we could form catchments, but they based on only one lower super output area, which may have produced a misleading picture of the characteristics of pupils in the catchment areas. We therefore excluded schools which take less than 20 pupils in an intake year.

Secondary: For most schools which had a lower starting age of 11, year 7 pupil data was used. However, for a small number where the low starting age was not 11, pupil data from the lowest possible intake year was used. For some school types such as free schools or schools that had recently merged or split, it was not possible to use a full three years of intake data. The minimum number of pupils required to include an LSOA in a school catchment area was set to 4 when two cohorts of data were available, and to 3 when a single cohort of data was available.

Pupil characteristics analysis

Pupil characteristics data from the National Pupil Database was aggregated to school and catchment area level. Totals from January 2014/15, 2015/16 and 2016/17 Census data were averaged to derive the figures presented in this paper. The specific variables analysed were gender, ethnicity, FSM, special education meals, English as an additional language, Key Stage 2 prior attainment and the Index of Deprivation Affecting Children Index (IDACI) score.

Urban/rural distinction

Urban and Rural indicators from Edubase were used to denote schools based in major urban areas, or in minor urban/rural areas. Categorisation is as follows: *Major urban*: urban major conurbation, urban minor conurbation; *Minor urban/rural*: urban city and town, urban city and town in a sparse setting, rural village, rural village in a sparse setting, rural town and fringe, rural town and fringe in a sparse setting, rural hamlet and isolated dwellings, rural hamlet and isolated dwellings in a sparse setting.

Chapter 5: How popular are free schools with parents?

School Preference

We used the Department for Education's 'Secondary and primary school applications and offers: 2017' data to explore whether free schools were proving to be popular with parents. We matched this data to their school capacity data to compare preferences to available school capacity.

Three measures were used to assess this, namely:

- The number of first preferences received
- The ratio of first preferences received by schools to the number of available places in their intake year
- The ratio of the number of first to third preferences received by schools to the number of available places in their intake year.

Chapter 6: How do free school pupils perform at Key Stages 2 and 4?

School and pupil matching

To assess the impact of secondary free schools on the attainment of their pupils, a matched sample of comparable pupils was identified using the following two-step process:

1. Secondary free schools were matched to comparable maintained and academy schools with a Key Stage 4 cohort in 2016/17, based on:

- cohort characteristics such as the Key Stage 2 average point score
- the proportion of disadvantaged pupils (pupil premium definition)
- school and local characteristics such as region, rurality and the average IDACI score for surrounding LSOAs

Up to three suitable comparison schools were selected for each free schools. No comparison school was used for more than one free school.

2. Free school pupils were matched to pupils in the identified comparison schools, based on individual characteristics such as gender, ethnicity and home language, special educational needs and eligibility for FSM, and prior attainment at Key Stage 2.

In both steps, Mahalanobis distance matching was preferred to other matching approaches as it provided more robust results than propensity score matching, and is a more practical procedure than coarsened exact matching. Sensitivity analysis has shown that the matching approach might have non-negligible implications on the final results, so the robustness of the approach and the quality of the resulting matches in both steps of the process were the key determinant for the preferred method.

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